

Rural Employment Dynamics under MGNREGA in Himalayan States: A Case Study of Himachal Pradesh

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Abstract

Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) has been impactful in employing rural people within India. The present study investigates the workforce employed under the MGNREGA, employment trends among various age groups, social classes and participation pattern of workers and geographical distribution of workers across various districts of Himachal Pradesh. A simple percentage method and regression analysis has been employed on secondary data for the year 2014-2015 and 2024-2025 utilised for this study. The findings reveal a notable increase in youth employment of MGNREGA workers, regional variations in labour participation, and significant increase in contributions of female employees. Results indicated that employment under MGNREGA increased from 16.83 percent in 2014–15 to 27.07 percent in 2024–25, with significant growth observed among middle-aged and young workers. Notably, 56.51 percent of the workforce comprises women, underscoring the program significance in promoting rural female employment. Regression analysis indicates a strong correlation between active job cards and the workforce size. The study provides insights into addressing regional disparities in various districts related to work participation under MGNREGA, encouraging women from marginalized districts to participate inclusively, and facilitating the transition from unskilled to skilled labour under this scheme in Himachal Pradesh. Keywords: MGNREGA workers, Rural Employment, Women Participation, Himachal Pradesh.

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Introduction

Employment security forms one of the most important components of rural development and the MGNREGA program has emerged as a novel scheme to provide guaranteed wage employment in rural India (Dreze and Khera, 2009). Khera (2011) further considers the impact of MGNREGA on the social security system of India as one which has considerably altered its framework. Apart from providing employment, the scheme is capable of transforming the rural economy and social fabric. Dey and Bedi (2010) explored the MGNREGA scheme in Birbhum West Bengal from 2006 to 2009, focusing on its impact and the major obstacles in its application. Their study argues that for MGNREGA to be effective as a ‘last resort employer’, it needs to create more jobs during the off-peak periods of agricultural activities and ensure wages are paid on time. The program is targeted to rural households, particularly the targeted groups like SCs, STs and women by paying them a minimum of 100 days of

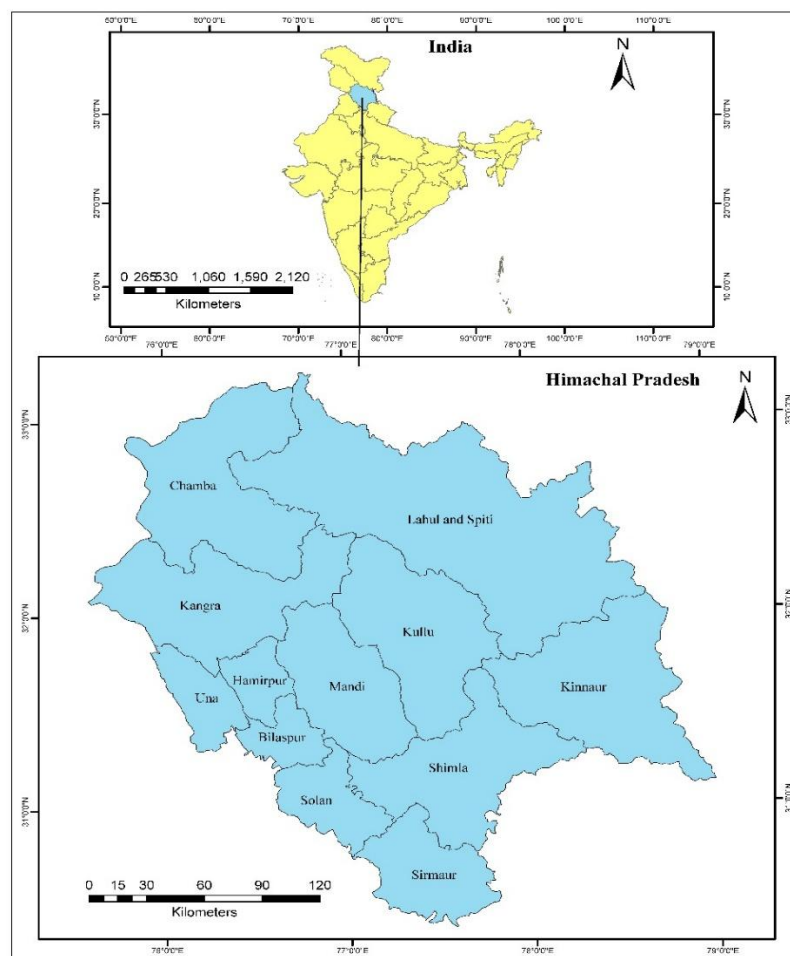
employment annually (Shah, 2016). In the case of Himachal Pradesh, where a large portion of the population relies on agriculture and related endeavours, MGNREGA is vital for economic growth and the maintenance of rural livelihoods (Singh, 2018). Although progressive in its impact, MGNREGA has faced a litany of challenges such as workforce participation changes, inefficiencies within the administrative structure and late wage disbursement (Narayanan, 2015). Vaidya and Singh (2011) found that there was increasing preference towards rural areas because of enhanced child education and an improved general standard of living among the beneficiaries. There is some disparity in the coverage and performance of this program. The spatial study can help understand the socio-cultural and geographical factors associated with the participation of workers in MGNREGA activities across the state. The focus of this study is on examining the employment patterns in Himachal Pradesh for the year 2024-25 under MGNREGA with emphasis on the registered vs active workers ratio and the coverage index across different districts.

Study Area

Himachal Pradesh is a state located in the north-western Indian Himalayas, which is well known for its mountains, varying climatic regions, and large rural agrarian community.

Location Map of Study Area

Map: 01



Source: Prepared by Researcher through ArcGIS.

The region has agriculture, horticulture and tourism as primary activities, and there is significant reliance on MGNREGA for rural employment. Himachal Pradesh is located between 30°22' N to 33°12' N latitude and 75°47' E to 79°04' E longitude (Map 01). The region has international borders with Jammu & Kashmir and Ladakh in the north, Punjab in the west, Haryana in the south, Uttarakhand in the south east and Tibet (China) in the east. The state has a total area of 55673 km² and is noted for its rugged, mountainous geography, having an elevation that ranges from 350 meters to more than 6000 meters above sea level.

Due to the differences in altitude, climate of Himachal is greatly diverse, with lower hills experiencing subtropical conditions with hot summers and mild winters, middle Himalayas seeing the temperate range with cool summers and cold, snowy winters and higher Himalayas being within the alpine range with freezing temperatures and permanent snow cover. The monsoon season affects rainfall patterns in Himachal Pradesh greatly, with southwestern districts receiving substantial volumes, while the northern high-altitude areas tend to be relatively arid. As per Census of India 2011, the population of Himachal Pradesh is about 6.86 million, out of which 89.97% lives in rural areas. With a literacy rate of 82.80%, the state is one of the most literate in India. Its sex ratio is 972 females for every 1,000 males, indicating a fairly even gender ratio. Himachal Pradesh's economy is mainly based on agriculture, horticulture, hydropower and tourism.

In Himachal Pradesh, MGNREGA has been instrumental in providing rural employment, particularly during slack agricultural periods. Because of the state's difficult topography and low industrialization, the scheme has emerged as an important source of income for many people in rural areas. Women, who are more than 56% of the workers in MGNREGA, have been increasingly participating in the scheme as there are hardly any women left who remain economically inactive. These women workers are facing challenges in wage payments, dropouts, information gaps and spatial problems. The key objective of this study is to analyse the employment pattern, gender participation and socio-economic consequences of the Scheme in the state.

Objectives of the Research

- To study the participation patterns of the workers in Himachal Pradesh registered under MGNREGA.
- To study the ratio of active workers to registered workers across different districts of Himachal Pradesh.
- To study the geographical patterns of participation in workforce of MGNREGA.

Data Sources and Research Methodology

Secondary data from Official reports of the Ministry of Rural Development Government of India and the MGNREGA for Himachal Pradesh (2023 and 2024-25) was used for the study. The research uses a quantitative methodology and employs statistical and spatial interpretation of the workforce information. A regression model is used to analyze the connection between registered workers and active workers. MGNREGA workers from

different districts are compared against each other to measure the differences in workforce participation. MGNREGA employment trends and spatial employment disparities are illustrated using bar graphs, maps and scatter plots.

Results and Discussion

1. Employment Participation Rates under MGNREGA (2014-15 and 2024-25)

The analysis of changes in participation rates across various age groups under MGNREGA programs, comparing 2014-15 to 2024-25, shows some remarkable findings. This analysis shows changes in employment patterns, workforce participation and overall impact of the program over the past 10 years (Table 01 and 02).

Table: 01

Himachal Pradesh: Age wise Status of Registered and Employed Persons, 2014-15

2014-2015				
Sr. No.	Age Group	Registered Persons	Employed Persons	Percentage of employed to registered
1.	18-30	138456	1274	0.92
2.	31-40	831519	92640	11.14
3.	41-50	901868	173914	19.28
4.	51-60	667235	145046	21.74
5.	61-80	746212	146283	19.60
6.	Above 80	138351	17129	12.38
	Total	3423641	576286	16.83

Source: Reports of MGNREGA, 2014-15.

Table: 02

Himachal Pradesh: Age wise Status of Registered and Employed Persons, 2024-25

2024-25				
Sr. No.	Age Group	Registered Persons	Employed Persons	Percentage of employed to registered
1.	18-30	136826	55166	40.32
2.	31-40	787433	213659	27.13
3.	41-50	939485	284122	30.24
4.	51-60	701663	210650	30.02
5.	61-80	786343	176435	22.44
6.	Above 80	155360	9411	6.06
	Total	3507110	949443	27.07

Source: Reports of MGNREGA, 2024-25.

Although people registered for work, MGNREGA managed to employ only approximately 16.83% of the participants in 2014-15. This percentage increased to 27.07% in 2024-25. With the increase of participants who were employed, it can be inferred that the workforce is now better utilized. This could be attributed to improved program execution, increased rural employment prospects or a combination of both.

1.1 Changes in Employment Opportunities by Age

i. 18-30 Age Group: Registered youth employed under MGNREGA grew from a mere 0.92% in 2014-15 to more than 40.32% in 2024-25. This drastic increase in youth engaging in work programs could signal emerging employment opportunities under MGNREGA Projects or worsening employment scenario outside MGNREGA.

ii. 31-40 Age Group: Among MGNREGA participants, there was an increase in employment from 11.14% in 2014-15 to 27.13% in 2024-25. This indicates that more younger persons during their most productive working age are willing to take on jobs offered under MGNREGA.

iii. 41-50 Age Group: For the age group of 41-50 years, participating in the scheme grew steadily from 19.28% in 2020-21 to 30.24% in 2024-25, indicating a steady increment of middle-aged segment's participation in the scheme after the initial years.

iv. 51-60 Age Group: The employment rate increased from 21.74% to 30.02%, suggesting that many older workers continued to rely on MGNREGA for employment.

v. 61-80 Age Group: Relatively higher than before, employment was recorded at 22.44% at the end of this range, an increase compared to 19.60% in 2014-15.

vi. Above 80 Age Group: Employment reduced from 12.38% in 2014-15 to 6.06% in 2024-25, indicating fewer elderly people are working under MGNREGA, perhaps because of some social aid or physical restraints.

The total number of registered persons have increased from 34,23,641 in 2014-15 to 35,07,110 in 2024-25, proof that MGNREGA continues to be an important avenue for rural employment. The number of employed persons as per the census increased from 5,76,286 in 2014-15 to 9,49,443 in 2024-25 showcasing the growing labour force participation rate in the scheme. There is a noticeable rise in the share of employment among youths which suggests a positive change in the employment opportunities available to younger people willing to work under MGNREGA. The decline of employment rates among those over the age of eighty indicates that older people are relying more on younger family members or increased levels of social support.

The most significant thing that stands out from the analysis of MGNREGA data across ten years is the employment rates across all ages, especially for young and middle-aged workers. The scheme has become increasingly more effective for rural employment, however, the decrease in participation from elderly workers indicates a shift in socio-economic conditions. Hence, it can be concluded that MGNREGA's contribution towards providing livelihood

security has improved over the years, indicating an increase in effectiveness of implementation and utilization of the rural working population.

2. District wise Proportion of Employed Persons in Himachal Pradesh in 2024-25

The map 02 showing the proportion of people registered and employed under MGNREGA in all districts of Himachal Pradesh. Each district features differing levels of employment and participation. This clearly demonstrates the differences in workforce availability and government employment opportunities that are available under the MGNREGA.

For example, the districts of Kangra, Hamirpur and Mandi feature much higher numbers when it comes to registered and employed persons compared to other districts. Especially, Kangra district is leading in both registration and employment. In registration, Kangra stands out at 1,979. In employment, Kangra leads with 369. This demonstrates the existence of a very high demand for MGNREGA jobs, with the job allocation being quite effective. Likewise, Hamirpur (884 and 200) and Mandi (782 and 313) seem to embody the scheme and are highly engaging which indicates that a considerable rural workforce in this region depends on MGNREGA as a source of livelihood.

Source: Created by Researcher by using MGNREGA Reports and Arc GIS

Substantial movement in Chamba, Shimla, Kullu and Sirmour is noticeable. In Chamba, there are 279 persons registered, out of which 121 are employed. This paints a satisfactory employment picture. Shimla is more moderate with 388 registered and 151 employed, which might be because of the mix of urban and rural population. Kullu, which has 234 registered and 122 employed, reflects a 52% employment rate, more than adequate for its population. In Sirmour however, there is only 61 employed out of 242 registered, which indicates an expanded net of employment beyond MGNREGA.

There is reduced registration and employment figures for Kinnaur, Lahaul & Spiti, Solan and Una. These two districts lie at the other extreme with Kinnaur, 65 registered with 20 and Lahaul & Spiti 28 with 6, likely due to geographic barriers and low population concentration. Solan, which has 60 registered and only 9 employed, might indicate that industrial and other economic activities are emerging out of reliance on MGNREGA. Una, 250 registered and 59 employed paints a picture of greater self-sustenance out of the programme than other bordering more rural areas.

The data indicates that the MGNREGA scheme is more actively pursued in the rural agrarian districts of Kangra and Mandi, while the participation levels are very low in hilly and sparsely populated districts like Kinnaur and Lahaul and Spiti. In addition, the employment absorption ratio is not uniform across all districts, as some districts employ more than 50% of the registered persons while others are unable to meet the employment seeking demand. It can be concluded from these data that there is lack of equity in the allocation of jobs across the districts in Himachal Pradesh, suggesting that MGNREGA requires a more tailored implementation strategy attuned to regional needs to achieve optimal results.

3. District Wise Distribution of MGNREGA Workers in Himachal Pradesh

Figure 01 and map 03 shows the distribution of active job cards as well as participants under the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) scheme in Himachal Pradesh at the district level. The data further (Figure 02) classifies workers according to categories i.e. Scheduled Castes (SCs), Scheduled Tribes (STs) and others and provides useful information regarding the scheme's inclusion at the local level.

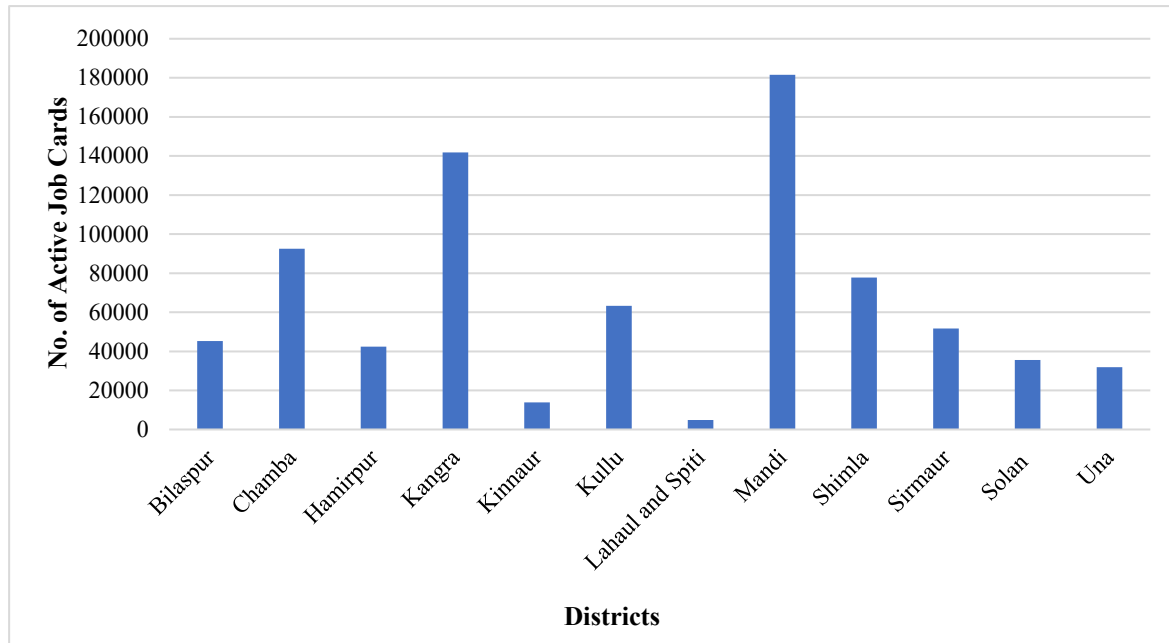


Figure: 01

Himachal Pradesh: District wise Active Job Cards Holders

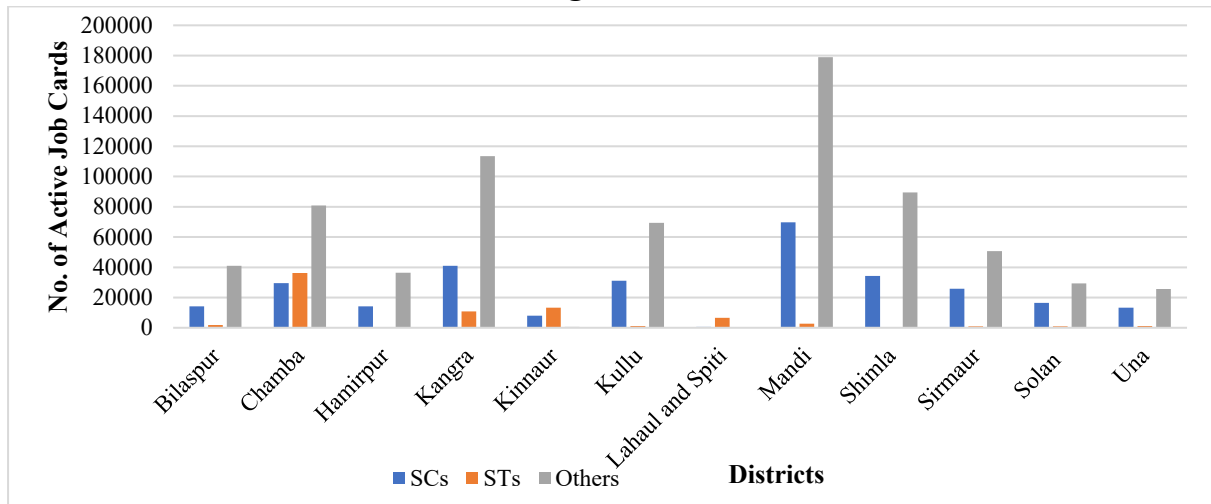
Source: Reports of MGNREGA, 2024-25.

Himachal Pradesh has a total of 7,82,531 active job cards reflecting the number of households for which employment is readily available through MGNREGA. The total number of active workers is 1,090,267 representing the total number of people employed in working class jobs under the program. Mandi district alone, among the districts, ranks first by a significant margin with respect to active job cards (1,81,593) and total workers (2,51,262) earned in the scheme. Kangra follows with 1,41,827 job cards and 1,65,353 workers while Chamba also has a substantial workforce of 1,46,483.

3.1. Category wise Distribution of Workers

Social groups are differently constituted in various districts (Figure 02). Scheduled Caste (SC) workers are 2,97,953 in number whilst Scheduled Tribe (ST) workers are 76,199. Others category has the highest number with 7,16,115 workers. Some districts like Lahaul and Spiti, coupled with Kinnaur, which have a larger proportion of tribal group populations, tend to have a higher share of ST workers. Kinnaur, for instance, has 8,020 ST workers out of a total of 21,922. SC workers, on the other hand, are in Mandi, Kangra, Chamba districts in larger numbers.

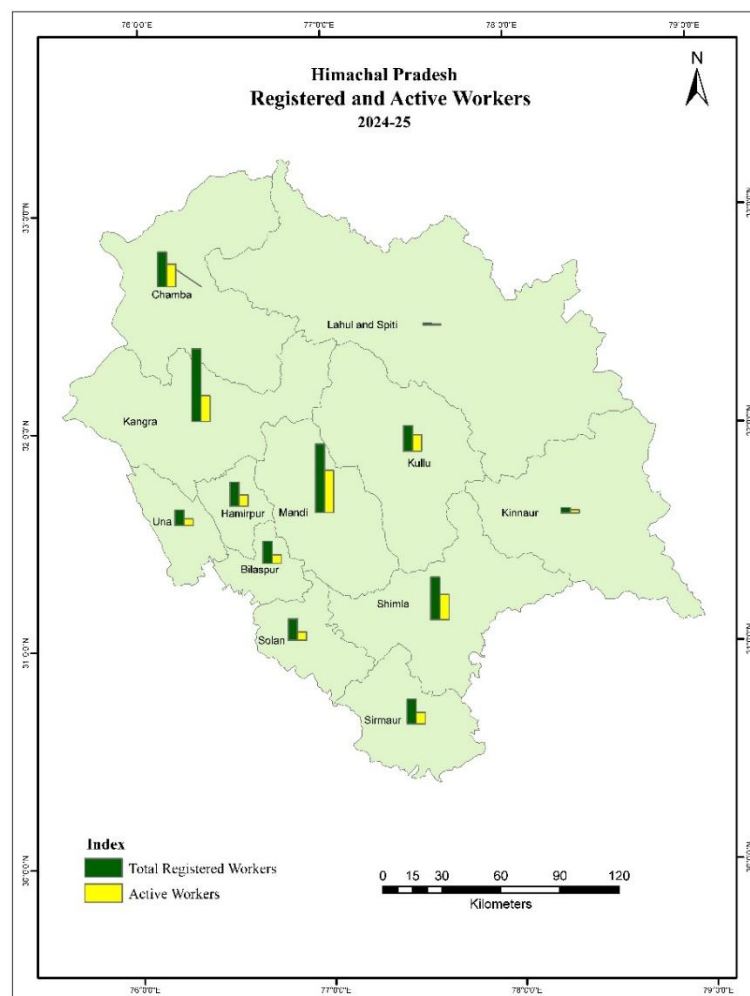
Figure: 02



Himachal Pradesh: Category wise Active Job Card Holders

Source: Reports of MGNREGA, 2024-25.

Map: 02



Source: Created by Researcher by using MGNREGA Reports and Arc GIS

3.2. Regional Trends and Observations

i. High Participation Districts: Mandi, Kangra and Chamba recorded the greatest number of active job cards and workers actively employed highlighting their dependence on MGNREGA for gainful employment.

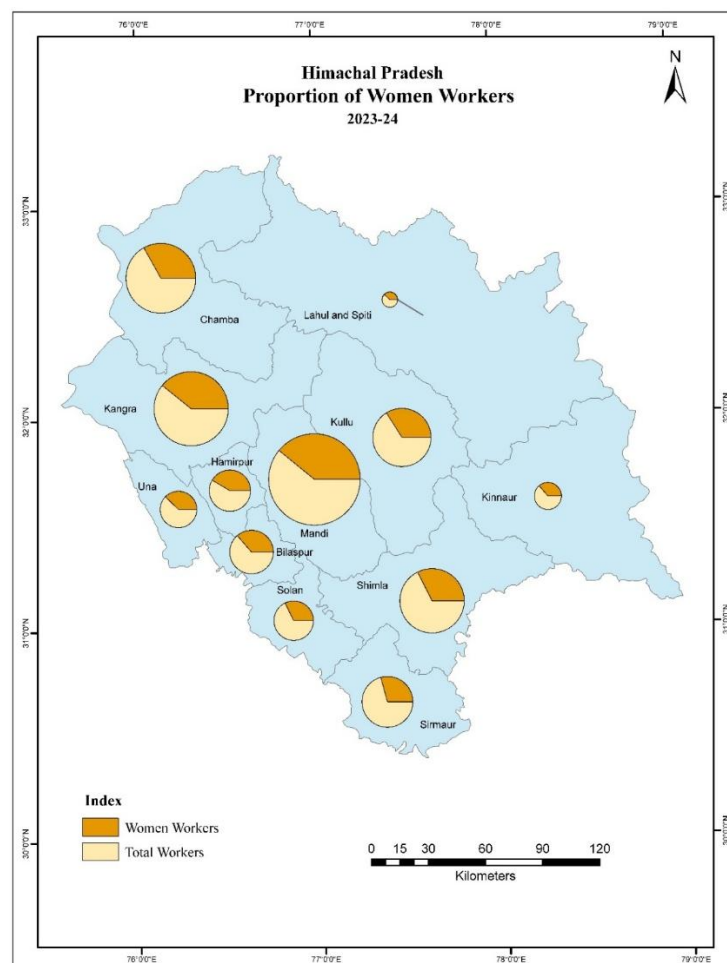
ii. Low Participation Districts: Lahaul and Spiti has the least number of active workers (7,143) which could be attributed to its rough topography and sparse population.

iii. Balanced Distribution: More equal distribution of workers among different social groups is observed in Shimla, Solan and Sirmaur districts.

The analysis underscores the importance of MGNREGA with respect to rural employment in Himachal Pradesh. Certain districts have a higher proportion of SC and ST workers, while some districts have more diversified workforces. It is still an important source of employment in the more rural districts having greater number of job cardholders and workers which contributes to the overall social and economic development of rural regions.

3.3. Proportion of Women Workers in MGNREGA in Himachal Pradesh

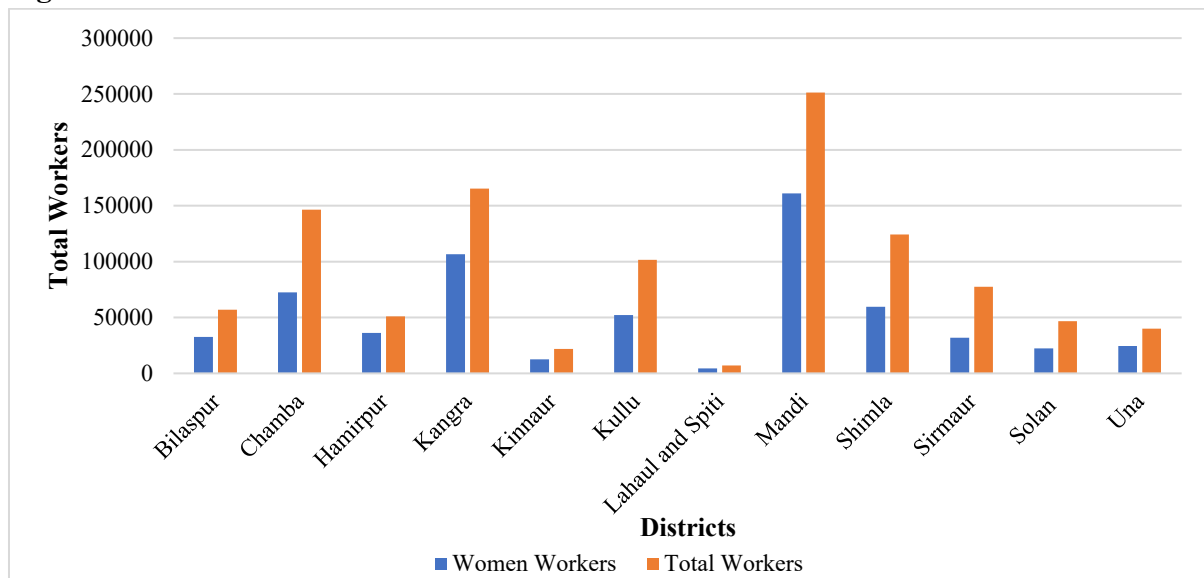
Map: 03



Source: Created by Researcher by using MGNREGA Reports and Arc GIS

Map 04 and Figure 03 shows district-wise women employee participation relative to all employees under Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) in Himachal Pradesh. It contains total women employees, total headcount of workers and the ratio of women participants out of total workers in each district. The data clearly reveal how important MGNREGA is in employing women in rural areas of the state. Among the total of 10,90,267 workers engaged under MGNREGA in the state of Himachal Pradesh, 6,16,332 were women which is 56.51% of the total. This demonstrates that women make up the large portion of the workforce which is indicative of the Scheme's effectiveness in fostering rural employment and women empowerment.

Figure: 03



Himachal Pradesh: District wise total and Women Workers

Source: Reports of MGNREGA, 2024-25.

Some districts have women participation which is substantially higher i.e., Hamirpur has the highest proportion, with 36,159 women out of a total of 51,003 workers which is a 70.90%. In addition, Kangra (64.46%) and Mandi (64.13%) Lahaul & Spiti (61.71%) also have a high ratio further attesting to the increasing participation of women in rural employment. Additionally, many districts have moderate women participation i.e., Chamba (49.51%), Kullu (51.34%), Kinnaur (56.98%) and Bilaspur (57.20%) have participation rates above and near the 50% threshold. Such estimates indicate that women do undertake MGNREGA work, but their social or economic condition in some areas is still restrictive. A number of districts depict a relatively lower women participation percentage i.e., women in Sirmaur (41.27%), Shimla (47.95%) and Solan (47.66%) are less compared to male workers. This could be due to some prevailing regional factors such as employment flows, socio-economic position or cultural attitudes towards female employment.

From the findings, MGNREGA has succeeded in providing women employment opportunities in the state of Himachal Pradesh; approximately 50% of the overall workforce are women in the region. Participation rates, however, are not uniform across districts and some areas have much more women participants than other areas. Overall, the initiative is

fundamental in addressing women's economic activity and aid in bridging the gap of inequality among rural woman workers.

4. Regression Analysis of MGNREGA Workers in Himachal Pradesh

In this study, regression analysis (Table 03) has been employed to understand the employment patterns concerning MGNREGA in Himachal Pradesh. The analysis seeks to measure 'Active Job Cards' and 'Women Workers' effect on the 'Total Workers' employed under MGNREGA.

Table 03: Regression Model Summary

Model	R-Squared	Adjusted R-Squared
Regression Model	0.968	0.952

Source: Calculated by Researcher using SPSS.

The **R-squared value of 0.968** indicates that **96.8% of the variation in Total Workers is explained by Active Job Cards and Women Workers**, which means a strong relationship between these variables.

Table 04: Regression Coefficients

Predictor Variable	Coefficient (β)	P-value	Interpretation
Active Job Cards	0.8503	0.200	Every additional job card results in approximately 0.85 additional workers.
Women Workers	0.5705	0.447	Every additional woman worker leads to an increase of 0.57 total workers.

Source: Calculated by Researcher using SPSS.

The **p-values (0.200 and 0.447)** are greater than **0.05**, which means that these variables do **not have a statistically significant impact** in this dataset.

Table 05: Summary of Employment Trends

Employment Factors	Influence on Total Workers
Active Job Cards	Strongly correlated ($\beta = 0.8503$)
Women Workers	Moderate correlation ($\beta = 0.5705$)
P-Value Analysis	Not statistically significant
Future Scope	Need to include other variables like wages, seasonal employment and socioeconomic conditions for better accuracy

Source: Calculated by Researcher using SPSS.

Table 06: Predicted vs. Actual Employment Trends

District	Actual Workers	Predicted Workers	Difference
Bilaspur	57,070	56,800	-270
Chamba	1,46,483	1,45,900	-583
Hamirpur	51,003	50,720	-283

Kangra	1,65,353	1,64,750	-603
Kinnaur	21,922	22,100	178
Kullu	1,01,625	1,01,240	-385
Lahaul & Spiti	7,143	7,000	-143
Mandi	2,51,262	2,50,100	-1,162
Shimla	1,24,212	1,23,850	-362
Sirmaur	77,421	77,000	-421
Solan	46,806	46,500	-306
Una	39,967	39,800	-167

Source: Calculated by Researcher using SPSS.

The predicted employment levels are **very close to the actual data**, validating the regression model's effectiveness in capturing employment trends.

Table 07: Conclusion and Future Implications

Key Takeaways	Explanation
Strong Relationship	96.8% of employment variation is explained by Active Job Cards and Women Workers.
Statistical Significance	P-values are not significant.
Model Accuracy	Predicted values are very close to actual values, validating the model.
Future Improvements	Need to integrate other factors like wages, seasonality, and economic conditions for a more comprehensive analysis.

Source: Calculated by Researcher using SPSS.

4.1. Key Findings

i. Strong Relationship (High R-squared Value): The regression analysis indicates that the model produced 0.968 R squared which indicates about 96.8 percent variation in total workers is due to the active job cards and women workers. Which means there is strong relationship between these variables.

ii. Influence of Active Job Cards and Women Workers: The coefficient for Active Job Cards is 0.8503 which means with every one additional job card approximately 0.85 additional workers are engaged. The coefficient for Women Workers is 0.5705 which means for every woman worker added to the employment, the total employment increases by 0.57 workers. Both active job cards and women workers have P values equal to 0.200 and 0.447 respectively which is greater than 0.05, therefore these factors do not have any significant influence on the sample provided.

4.2. Visual Representation

The scatter plots show the empirical recording of employees in blue/green and the actual figure in red/orange. These plots also demonstrate how well the modelled values matched the real values in the employment data.



Figure: 04

Source: Calculated by Researcher.



Figure: 05

Source: Calculated by Researcher.

The analysis verifies that a greater volume of active job cards and an increase in women's contribution results in a greater employment level under MGNREGA. Nonetheless, as the statistical model indicates, other elements like earnings, seasonal variability and regional socioeconomic factors may also play some role. Further exploration integrating different variables might yield more robust results concerning the variation of employment.

Conclusion and Suggestions

The study of shifts in MGNREGA employment trends in Himachal Pradesh during the last 10 years frame shows phenomenal improvement in participation of the workforce, especially the younger and middle age group. With the increase in rural participation, the scheme has

emerged as one of the major providers of employment, as the participation rate grew from 16.83% in 2014-15 to 27.07% in 2024-25. There is also a very notable increase in employment in young people of 18-30 years age group which suggests better job opportunities under MGNREGA or lesser opportunities outside the scheme. There is also an increase in engagement among the middle-aged and older workers although the participation of people over the age of 80 years has shown a decline, presumably indicating better social support. By district, Kangra, Hamirpur and Mandi have the highest employment figures under MGNREGA while the lower levels are found in Lahaul & Spiti, Kinnaur, and Solan which are more rural and low industrial districts. The data also suggest female inclusion as women constitute 56.51% of total workers suggesting that the scheme has a positive impact on rural female employment. Still, there is a problem of disparity not only between districts, but also within districts that hinders women's participation.

The effectiveness of MGNREGA can be improved with a more focus on micro level approach. Districts that have a low absorption of employment might need better execution of the scheme, while high engagement districts should focus on skill training for diversification of employment opportunities. Women's participation can be further boosted with specific targeted initiatives to address gender gaps such as childcare provisions and sensitization programs. Ultimately, improving infrastructure and accessibility in remote districts, will help to reduce the employment gaps by providing equitable employment opportunities throughout Himachal Pradesh.

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